

STUDIES IN BIGNONIACEAE 12:
NEW OR NOTEWORTHY SPECIES OF SOUTH
AMERICAN BIGNONIACEAE¹

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ABSTRACT

Four new species of Bignoniaceae—*Distictella pauciflora* A. Gentry, *Jacaranda irwinii* A. Gentry, *Memora paucifoliolata* A. Gentry, and *M. croatii* A. Gentry—and the fruits of *Roentgenia bracteomana* (K. Schum. ex Sprague) Urb., *Cuspidaria weberbaueri* (Sprague) A. Gentry, and *Tynnanthus weberbaueri* Sprague are described. Confusion of the winged fruits of some species of *Tynnanthus* with *Cuspidaria* is noted, and *Cuspidaria ovalis* Rusby and *Cuspidaria schumanniana* O. Kuntze are transferred to *Tynnanthus*. *Jacaranda praetermissa* Sandw., *Jacaranda robertii* S. Moore, *Tabebuia eximia* (Miq.) Sandw., *Tabebuia elliptica* (DC.) Sandw., and *Tabebuia bureauvii* Sandw. are reinterpreted.

Several new species and a number of other important collections of South American Bignoniaceae have been discovered during routine curatorial work in the herbarium of the Missouri Botanical Garden and in consignments of specimens sent for identification by the New York Botanical Garden and the Instituto Botanico de Venezuela. Consultation of relevant material in most of the major European herbaria has also made possible a reinterpretation of several species of *Tabebuia*.

DISTICTELLA PAUCIFLORA A. Gentry, sp. nov.

Frutex scandens. *Ramuli* teretes, minute puberuli, sine consociibus glandularum in nodis inter petiolos. *Pseudostipulae* deficientes. *Folia* bifoliolata, interdum cirrho, foliolis anguste ellipticis vel lanceolato-ellipticis, acuminatis, confertim lepidotis. *Inflorescentio* pauciflora. *Calyx* campanulatus, truncatus, lepidotus, margine ciliato, consociibus glandularum linearibus. *Corolla* superne pallide lavandula, infra alba, tubulo-campanulata, dense puberula in tubo extus atque in lobis. *Stamina* thecis divaricatis, 4 mm longis. *Pistillum* stylo confertim strigoso-puberulo basi, ovario oblongo, dense strigoso. Capsula ignota.

Vine, the branchlets terete, minutely puberulous, the nodes without glandular fields; pseudostipules lacking. *Leaves* 2-foliolate, sometimes with a tendril; leaflets narrowly elliptic to lanceolate-elliptic, long acuminate, cuneate, 5.5–13 cm long and 1.5–4.2 cm wide, subcoriaceous to coriaceous, secondary veins 4–7 on a side, densely glandular-lepidote below, less so above, otherwise glabrous or with a few inconspicuous trichomes at extreme base of midvein above, the midvein and secondary veins slightly impressed above and raised below, drying brownish olive; tendril tip broken on type specimen; petiolules 0.3–0.7 cm long, petiole 1–2 cm long, lepidote and somewhat minutely puberulous like the petiolules. *Inflorescence* of type with one terminal flower and one flower in the axil of the uppermost leaf, ebracteate, the pedicels lepidote and papillose-puberulous, 1.8–2.3 cm long. *Calyx* campanulate, truncate, 8–9 mm long and 7–8 mm wide, lepidote and

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inconspicuously scurfy-puberulent, the margin somewhat ciliate, with several paired linear glandular fields descending from rim. *Corolla* pale lavender above, white below, tubular-campanulate, 5–6 cm long and 1.3–1.8 cm wide at mouth of tube, the tube 3.5–4.5 cm long, the lobes 1.3–2 cm long; densely puberulous without and on lobes within, the tube within mostly glabrous or very sparsely glandular-lepidote toward mouth and base, densely glandular-pubescent with 1–3-celled trichomes at level of stamen insertion. *Stamens* didynamous, the anther thecae divaricate, each 4 mm long, the longer filaments 1.9–2.1 cm long, shorter filaments 1.7–1.9 cm long, the staminode (broken) at least 2 mm long, insertion 7–10 mm from base of corolla tube. *Pistil* 3.6–3.7 cm long, the stigma lobes 2.5 by 1.5 mm, the style densely strigose puberulous at base, becoming sparsely puberulous 1.5 cm from base and glabrous in upper third, the ovary oblong, 4 mm long and 1.5 mm wide, densely strigose; disk in two distinct parts, the upper part truncate-conical, 1 mm long and 1 mm wide at top, 1.5 mm wide at base, the lower part annular-pulvinate, 1 mm long and 3 mm wide. *Capsule* unknown.

Holotype: VENEZUELA. BOLÍVAR: Region de Canaima, entre el hotel y el Salto Hacha, 6° 15' N lat., 62° 47' W long., alt. 400 m; vining low, corolla pale lavender above, white below; calyx pale green; leaves coriaceous, deep green above, dull green below, 18 Jul. 1972, *Steyermark* 106343 (MO).

This species differs dramatically from all known species of the genus in its greatly reduced inflorescence. In its very narrow leaflets, it is equalled only by *D. angustifolia* (Schum. ex Spr.) Urb. from which it differs vegetatively (ex descri.) in its long-acuminate leaflets (obtusely acuminate in *D. angustifolia*), shorter petioles (1–2 cm; 2–3 cm in *D. angustifolia*) and petiolules (0.3–0.7 cm; 1–2 cm in *D. angustifolia*), and fewer secondary veins (4–7 on a side; 10–12 on a side in *D. angustifolia*). Its described flower color (pale lavender above) is also unique in this white-flowered genus. (*Distictis rosea* Kränzl., of which I have seen no specimen, has lavender flowers but is certainly not a *Distictella*; this is hardly surprising since Kränzlin's generic placement of his (supposedly) new species of Bignoniaceae seems almost random.)

Both in its reduced inflorescence and lavender flower color, *D. pauciflora* approaches *Distictis*, which differs from *Distictella* in characters of the fruit and in having a straight (not bent) corolla tube, angulate stems with detachable ribs, and the usual presence of pseudostipules. Nevertheless, *D. pauciflora* provides a link between these two genera. Should its fruit also prove to resemble that of *Distictis*, support would be given to a possible reunion of these two genera.

CUSPIDARIA WEBERBAUERI (Sprague) A. Gentry, *Brittonia* 25: 233. 1973.

This rarely-collected species was transferred from *Arrabidaea*, first to *Saldanhaea* by Sandwith (Kew Bull. 1968: 408. 1968) and then with that whole genus to *Cuspidaria* by Gentry (*Brittonia* 25: 231–233. 1973), on the basis of floral characters. Its fruit has remained unknown. As circumscribed by Sandwith (Kew Bull. 1953: 462. 1954: 22: 408. 1968) it contains two elements, a Peruvian and Colombian form with tannish leaf tomentum and a form with canescent leaves having prominulous veinlets (vegetatively much like *Arrabidaea candicans* (L.

Rich.) DC.) which occurs in Amazonian Brazil and Venezuela. A fruiting collection which appears referable to the canescent-leaved form of *C. weberbaueri* is included in the recent Brazilian collections of Ghilleen Prance and associates. This specimen, *Prance et al. 13974* (MO), is from the vicinity of the Lábrea airport, forest on terra firme, Rio Purus, Rio Ituxi, State of Amazonas, Brazil. It is described as a liana with simple tendrils, 8 cm maximum diameter, fruit green, glaucous. The fruit is linear, terete, 29 cm long and 1.3 cm wide, puberulous, drying grayish, with scattered small lenticel-like glands. Each valve has a conspicuous median longitudinal furrow 2–3 mm wide and bordered by a slightly raised line on either side. The seeds are thin, flattened, bialate, 8–9 mm long and 3.7–4.6 cm wide, with the hyaline membranaceous wings sharply demarcated from the seed body.

The leaves of *Prance et al. 13974* are larger and more coriaceous and the branchlets more conspicuously lenticellate than in other collections of *C. weberbaueri* I have seen. However, similar changes often occur in fruiting specimens of Bignoniaceae, and I am fairly confident that the *Prance et al.* collection can be identified with the canescent form of *C. weberbaueri*. I suspect that this canescent-leaved plant may itself prove distinct from the tannish-pubescent Peruvian plant despite their strong floral similarities, but description of a new species seems premature until a more adequate series of herbarium specimens is available for analysis.

The fruit of the *Prance et al.* collection is of interest in being rather intermediate between those of the species formerly assigned to *Saldanhaea* and those of *Cuspidaria* sensu stricto. Though having the median furrow of *Saldanhaea* it is shorter than the fruit of *C. (Saldanhaea) lateriflora* (Mart.) DC. or *C. (Saldanhaea) floribunda* (DC.) A. Gentry and no longer than that of some species of *Cuspidaria* with winged fruits. This fruit further supports the merger of *Saldanhaea* with *Cuspidaria*.

TYNNANTHUS SCHUMANNIANUS (O. Kuntze) A. Gentry, comb. nov.

Cuspidaria schumanniana O. Kuntze, Rev. Gen. Pl. 3: 243. 1893.

C. ovalis Rusby, Descr. 300 New Sp. S. Amer. Pl. 120. 1920.

It has recently been discovered (Gentry, *Brittonia* 25: 231–233. 1973) that the winged fruit which had been considered the chief generic criterion of *Cuspidaria* is insufficient for generic definition. An additional example of the pitfalls of taxonomic over-reliance on this character is now at hand. *Cuspidaria ovalis*, a Bolivian species described from fruiting material in the absence of flowers, was placed in *Cuspidaria* because of its winged fruit-margins. It has seemed rather strange that the several collections of this species were all in fruit, a reversal of the usual predominance of flowering material in collections of Bignoniaceae. A re-examination of *Cuspidaria ovalis* shows that it vegetatively matches previously unidentified flowering specimens of *Tynnanthus* from the same region. Its transfer to *Tynnanthus* is thus necessary.

Coincidentally, yet another species of *Cuspidaria* was described from the same area of Bolivia, also from a fruiting collection. *Cuspidaria schumanniana*

was described by Kuntze in 1893 but has been subsequently ignored. Although I have seen no specimen of *C. schumanniana*, its trifold tendril clearly identifies it with *Tynnanthus* rather than *Cuspidaria*, and its description matches *Cuspidaria ovalis*. Kuntze's name is older than Rusby's so the new combination in *Tynnanthus* is *Tynnanthus schumannianus*.

The description of this species can now be completed as follows: *Inflorescence* an axillary panicle, its branches puberulous with simple trichomes. *Calyx* cupular, truncate or minutely and evenly 5-denticulate, puberulous at least on denticulations and at base. *Corolla* pale yellow (after *Prance et al. 12484*), bilabiate, 5–6 mm long, split more than half its length, the 2 upper lobes almost fused, the 3 lower ones 1–2 mm long; puberulous without and on lower 3 lobes within, subpuberulous on anterior side of tube and at base of stamens. *Stamens* didynamous, the anther thecae ca. 1 mm long, divaricate, twisted near base and reflexed forward, insertion near base of corolla tube, staminode with a few short trichomes above base. *Pistil* 4–5 mm long, the style puberulous, the ovary conical, 1 mm long, 0.5 mm wide, densely puberulous; disc lacking.

Collections examined: BRAZIL. ACRE: Cruzeiro do Sul, Rio Jurua & Rio Moa, vicinity of Serra da Moa village, varzea forest; liana, calyx green, corolla pale yellow, flowers fragrant, young fruit green, 26 Apr. 1971, *Prance et al. 12484* (MO). Near mouth of Rio Macauhan (tributary of Rio Yaco), lat. 9° 20' S, long. 69° W, on Terra firma; vine (fruit), 11 Aug. 1933, *Krukoff 5454* (MO). AMAZONAS: Rio Purus, Rio Ituxi, vicinity of Lábrea, forest on terra firme; liana with trifold tendrils, fruit green, 4 Jul. 1971, *Prance et al. 13954* (MO). BOLIVIA. LA PAZ: Province of Larecaja, Copacabana, about 10 km S of Mapiri, alt. 850–950 m; vine (flowers), 8 Oct.–15 Nov. 1939, *Krukoff 11245* (MO). Mapiri, (fruit), Jul.–Aug. 1892, *Bang 1485* (GH, K, MO, NY, US; type of *C. ovalis*). Province of S. Yungas, basin of Rio Bopi, San Bartolome (near Calisaya), alt. 750–900 m; vine (fruit), 1–22 Jul. 1939, *Krukoff 10399* (MO).

The species appears restricted to northern Bolivia and adjacent Brazil.

Tynnanthus schumannianus keys out with *T. myrianthus* in the *Flora Brasiliensis* (Bureau & K. Schumann, Fl. Bras. 8(2). 1896) treatment because of its puberulous inflorescence, subtruncate or minutely 5-denticulate calyx, and 6-mm-long corolla. Its narrower elliptic or ovate-elliptic leaflets and almost complete vegetative glabrescence readily separate it from *T. myrianthus*. *Tynnanthus goudotianus* (Bur.) Bur. of Colombia, known only from the type collection, is very closely related to *T. schumannianus* but differs in an obliquely truncate calyx with a single posterior denticulation. Its fruit is unknown. *Tynnanthus weberbaueri* (see below) also has glabrous leaves but these are larger and dry yellowish beneath with contrasting reddish black main veins. The corolla of *T. schumannianus* (subpuberulous anteriorly) is intermediate between *T. goudotianus* and *T. weberbaueri*. *Tynnanthus guatemalensis* of northern Central America is likewise very close to *T. schumannianus*. It seems to differ constantly in a less strongly pubescent inflorescence, simple rather than trifold tendrils, thinner less intricately reticulate leaves with the midvein often somewhat puberulous, and the usual presence of a V-shaped interpetiolar ridge. Significantly, its winged fruit is just that of *T. schumannianus*. None of the characters separating *T. schumannianus*, *T. goudotianus*, and *T. guatemalensis* appear especially convincing, and they may eventually prove no more than geographical variants of a single wide-ranging species. However, in view of their large range disjunctions cor-

related with constant morphological differences, it seems best to consider them distinct, at least for the present.

TYNNANTHUS PANURENSIS (Bur.) Sandw., Kew Bull. 1953: 465. 1954.

Tynnanthus panurensis has been represented in herbaria only by Spruce's type collection from Santarem, Brazil. I would also refer *Klug 1942* (MO) from lowland Amazonian Peru (Dept. Loreto: Florída, Río Putumayo at mouth of Río Zubineta, alt. 200 m; forest) to this species. The *Klug* collection is described as a vine with the corolla cream-lilac. It differs from the type in having some simple trichomes on the inflorescence and in the slightly puberulous calyx which has a somewhat ciliate margin. The leaflets of the *Klug* specimen are also less asymmetric than in Spruce's plant although similar in membranaceous texture, main veins drying conspicuously darker beneath, and glabrous condition. The long, dark-drying petiole (8.5 cm) and terminal petiolule (4.5 cm) of the single intact leaf of the *Klug* collection also agree well with *T. panurensis* (described as petiole 10 cm long, terminal petiolule 3.5–4.5 cm long).

TYNNANTHUS WEBERBAUERI Sprague, Bot. Jahrb. (Syst.) 42: 176. 1909.

Tynnanthus weberbaueri was described from an altitude of 1000 m in the Department of Junín, Amazonian Peru. It is known only from the *Weberbauer* type collection. Its flowers are much smaller than those of *T. panurensis*, but vegetatively the two species are quite similar, especially in relatively large glabrous leaves which dry light (usually yellowish) below with contrasting darker main veins. *Tynnanthus weberbaueri* differs vegetatively from *T. panurensis* principally in subcoriaceous leaves and shorter petioles (3–4 cm long) and terminal petiolules (2–2.7 cm long). The first fruiting collection of this alliance is now at hand and must of course be identified on the basis of vegetative characters. This collection is *Forero, Coelho & Farias 6336* (MO) from the vicinity of Campinas at km 242–246 on the highway from Abuña to Rio Branco, State of Acre, Brazil. It is described as a vine with the fruit green. Its leaves are subcoriaceous with petioles 4–4.5 cm long and terminal petiolules 2.7–3 cm long. The *Forero et al.* collection thus appears to belong to *T. weberbaueri* rather than the lowland *T. panurensis*. The fruit of *T. weberbaueri* proves to be of the *Cuspidaria* type. It is a linear oblong, conspicuously 4-winged capsule, obtuse at both ends, 15–22 cm long, ca. 1.2 cm wide and 7–8 mm thick without the wings, to 2.3 cm wide with the 4–5-mm-wide wings flattened, drying brown to blackish, glabrous, the midrib not evident; seeds thin, flat, bialate, 0.6–0.8 cm long and 2.5–3.2 cm wide, the hyaline-membranaceous wings sharply demarcated from the seed body.

With the admission of the *Forero et al.* collection into *Tynnanthus weberbaueri* the range of that species overlaps with that of *T. schumannianus*. It might then be possible that Kuntze's *Cuspidaria schumanniana* (see above), described as a glabrous-leaved plant with winged capsules, should be referred to *Tynnanthus weberbaueri*. However, the 8-cm-long and 1–1.5-cm-wide capsule of

Kuntze's plant is clearly closer to *Cuspidaria ovalis* than to the larger capsule of *T. weberbaueri*.

MEMORA CROATII A. Gentry, sp. nov.

Frutex scandens. *Ramuli* teretiusculi, plerumque glabri, sine consociibus glandularum in nodis inter petioles. *Pseudostipulae* parvae, obovatae. *Folia* bipinnata vel tripinnata, vulgo cirrho simplici inter duas pinnas principales, foliolis anguste ellipticis vel late lanceolatis, plerumque glabris, puberulis supra in costa. *Inflorescentia* axillaris paniculata, ramulis laterilibus racemosis, bracteis minutis, bracteolis obovatis caducis. *Calyx* cupulatus, 5-denticulatus, vulgo aliquantum fissus, puberulus margine. *Corolla* flava, tubulo-campanulata, extus glabra, intus plerumque glabra. *Stamina* thecis divaricatis, 2.5 mm longis. *Pistillum* ovario lineari, glabro. *Discus* pulvinatus. *Capsula* linearis, valde compressa, glabra.

Liana, the branchlets subterete, mostly glabrous, often puberulous at nodes, drying brownish; without interpetiolar glandular fields, a straight ridge connecting opposite petioles; pseudostipules small (to 9 mm by 3 mm), obovate, narrowed at base, drying blackish, conspicuously glandular. *Leaves* bipinnate or tripinnate, usually with a simple tendril between two primary pinnae, sometimes ecirrhose with a third (terminal) primary pinna, this variously divided, each lateral primary pinna usually 5-9-foliolate with the lowermost pair of leaflets itself usually trifoliolate, the terminal pinna, if present, usually terminating in a second pair of 5-9-foliolate pinnae; leaflets narrowly elliptic to widely lanceolate, acute to acuminate, the base cuneate, 2-8(-10) cm long and 0.7-3(-3.5) cm wide, chartaceous, the main veins (especially midvein) somewhat raised below, midvein slightly raised above, mostly glabrous underneath, sometimes subpuberulous at extreme base of midvein, above puberulous on midvein, otherwise glabrous; drying olive to olive-brown; petiolules 0-5 mm long, rachises of primary pinnae 3-15 cm long, grooved on upper side, petioles 1-2.5 cm long, puberulous in grooves, especially along margins. *Inflorescence* an axillary panicle with 2-4 paired lateral branches, each branch racemose, inconspicuously lepidote, slightly puberulous at nodes, each pair of pedicels subtended by a pair of acute, narrowly triangular, caducous bracts, these ca. 1.5 mm long, pedicels 7-10 mm long with a pair of glandular obovate caducous bracteoles near middle of pedicel below each bud, these 3-4 by 2-3 mm. *Calyx* cupular, basically truncate, conspicuously 5-denticulate, usually one-sidedly split one-third the way to base, 8-9 mm long and 4-6 mm wide, the apiculations to almost 1 mm long, mostly glabrous, puberulous on margin, especially the teeth, eglandular or inconspicuously glandular, drying greenish. *Corolla* yellow, tubular campanulate, 4-5 cm long and 0.8-1.2 cm wide at mouth of tube, glabrous outside, mostly glabrous inside, slightly puberulous at level of stamen insertion and very slightly glandular-lepidote at base of lobes. *Stamens* didynamous, the anther thecae divaricate, 2.5 mm long, the longer filaments 2.3-2.5 cm long, shorter filaments 1.7-1.9 cm long, the staminode ca. 3 mm long, insertion 11-12 mm from base of corolla tube. *Pistil* 3.3-3.4 cm long; ovary linear, 3-4 mm long and 1 mm wide, glabrous; disc pulvinate, 1-1.5 mm long, 2.5 mm wide. *Capsule* linear, strongly and uniformly compressed, 35-39 cm long and 1.0-1.8 cm wide, the margin undulate, contracted between seeds, glabrous, slightly glandular lepidote, drying blackish, the midrib not evident; seeds not seen.

Holotype: PERU. LORETO: 7 km. NE of Río Nanay and Puerto Almendra; liana, flowers yellow, fruit green, immature, 23 Jul. 1972, *Croat 18335* (MO; isotypes F, K, NY, PMA, VEN, USM).

Known from lowland Amazonian Peru and adjacent Brazil.

Additional collections examined: PERU. LORETO: Prov. Maynas, la carretera a Zúngaro Cocha, cerca del Lago, al S.O. de Iquitos, alt. 125 m; trepadora flores amarillas, con los ápices del tubo naranja, 3 Nov. 1964, *Dodson 2899* (MO). BRAZIL. ACRE: Cruzeiro do Sul, Rio Jurua and Rio Moa, Estrada Alemanha, forest margins; liana, flowers yellow, 27 May 1971, *Maas et al. P13312* (MO).

Two collections from the Rio Curuquete (a tributary of the upper Rio Purus), State of Amazonas, Brazil (*Prance et al. 14349, 14308*, both MO) are closely allied to this species. They differ chiefly in larger leaflets (9–17 cm by 3–8.8 cm) and in having the calyx conspicuously glandular below the apex and usually truncate without a split on one side. Additional collections are needed to determine whether these collections represent a distinct taxon.

Memora is taxonomically a very difficult genus. This new species is allied to *M. patula* Miers on the basis of its inflorescence but differs in its narrower, basically truncate, evenly denticulate, green-drying calyx, smaller bracts, and much narrower, undulate-margined fruit. In Sampaio's key, *M. croatii* is related to the very different *M. flavida* (DC.) Bur. & K. Schum. if its calyx is considered truncate and to *M. rondoni* A. Samp. (which from the description is probably actually closer to the very distinct *M. schomburgkii* (DC.) Miers), if the calyx is considered one-sidedly split.

MEMORA PAUCIFOLIOLATA A. Gentry, sp. nov.

Fruticulus. *Ramuli* teretiusculi, pilosi, sine consociebus glandularum in nodis inter petioles. *Pseudostipulae* foliaceae. *Folia* trifoliolata vel paripinnatim 4-foliolata, foliolis ovatis, apicibus obtusis, basaliter rotundatis, subcoriaceis, bullatis, pilosis. *Inflorescentia* racemosa, bracteata, rachi pedicellisque pilosis, floribus per bracteolas ellipticas subtentis. *Calyx* subspathaceus, intus lepidotus extus pilosus. *Corolla* flava, tubulo-infundibuliformis, extus glabra, intus plerumque glabra. *Stamina* thecis divaricatis, 3–4 mm longis. *Pistillum* ovario oblongo, glabro. *Discus* pulvinatus. *Capsula* lineari-oblonga, aliquantum lignosa, glabra, seminibus tenuibus, alis plerumque bruneolis.

Subshrub 2 m tall, branchlets terete, pilose, without interpetiolar glandular fields; pseudostipules foliaceous, suborbicular, to 1.2 cm long and 1 cm wide, resembling the leaflets. *Leaves* trifoliolate or paripinnately 4-foliolate (rarely 2-foliolate), without tendrils; leaflets ovate to rhombic-elliptic, obtuse, the base rounded but sometimes abruptly and shortly attenuate at extreme base, 3.5–8 cm long and 1.4–4.3 cm wide, subcoriaceous, rather bullate with the main veins conspicuously raised beneath, pilose throughout with simple trichomes, these especially conspicuous on margin and main veins, drying grayish olive; petiolules lacking or to 3 mm long (to 9 mm in terminal leaflet of 3-foliolate leaves), petiole 0.5–1.0 cm long, rachis of 4-foliolate leaves ca. 2 cm long, conspicuously pubescent. *Inflorescence* a bracteate terminal raceme (described as paniculate by the collectors), the flowers paired, adjacent pairs separated by 2–3 cm, each pair of flowers subtended by 2 narrowly elliptic, shortly apiculate, pubescent, caducous bracts, these to 12 mm long and 4 mm wide, rachis and pedicels pilose, each

pedicel 8–10 mm long, with a pair of elliptic bracts subtending the flower in its upper third, these ca. 1 cm long and 0.5 cm wide, pubescent. *Calyx* subspathaceously split about half its length, the apex irregularly several-lobed, each lobe apiculate, 15–22 mm long and 7–9 mm wide, pilose-puberulous especially in lower third and on lobes, glandular-lepidote inside, usually with plate-shaped glands outside. *Corolla* yellow, tubular-infundibuliform, 5–6 cm long and 1.3–1.8 cm wide at mouth of tube, glabrous outside, inside mostly glabrous, pubescent below level of stamen insertion. *Stamens* didynamous, the anther thecae divaricate, 3–4 mm long; insertion ca. 10 mm from base of corolla tube. *Pistil* ca. 3.5 cm long, the ovary oblong, somewhat compressed, with 2 longitudinal grooves on each side, 2.5 mm long and 1 mm wide, 0.5 mm thick, glabrous; disc ca. 1 mm long and 4 mm wide. *Capsule* linear oblong, widest in middle third, tapering toward each end, 28–29 cm long and 2.4 cm wide at middle, ca. 5 mm thick, the valves uniformly and evenly flattened but rather woody, midrib not visible, glabrous, drying brownish-black; seeds thin, asymmetrically bialate, 1.3–1.4 cm long and 7.5–8 cm wide, the wings mostly brown, becoming gradually hyaline at extreme tips, not demarcated from seed body.

Holotype: BRAZIL. GOIÁS: Cerrado, ca. 10 km W of Cristalina, elev. 1200 m; subshrub ca. 2 m tall, the paniculate inflorescence ca. 1.5 m high; corolla yellow; fruit green, 4 Mar. 1966, Irwin, Grear, Souza & Reis dos Santos 13438 (UB; isotypes MO, NY, to be distributed).

This species is known only from the type collection.

Vegetatively *M. paucifoliolata* is similar to its sympatric congener *M. axillaris* Bur. & K. Schum. Both are subshrubs of the cerrado and have pubescent, simply pinnate leaves, foliaceous pseudostipules, similar inflorescences, and calyces glandular-lepidote inside. *Memora paucifoliolata* differs most strikingly from *M. axillaris* in its conspicuous bracts and bracteoles. In *M. axillaris* bracts and bracteoles are absent or reduced to scales ca. 1 mm long. Furthermore the scale-like bracteoles of *M. axillaris* are very near the base of the pedicel rather than in its upper third. Calyces, pedicels, and inflorescence rachis of *M. axillaris* are all glabrous rather than pilose and the calyx is eglandular. The fruit of *M. axillaris* has much thinner valves than that of *M. paucifoliolata* and has a noticeably raised midline and an undulate margin; its seeds have much shorter more symmetrical wings. Vegetatively its rather bullate leaves with (always?) fewer leaflets seem a consistent character for separating *M. paucifoliolata* from *M. axillaris*. Two other species have the calyx conspicuously glandular-lepidote inside (the Axillares group of Sampaio (Anais Reunião Sul-Amer. Bot. 3: 149–170. 1938)). Of these *M. tridenticalyx* Samp. (from the description) differs in climbing habit, few-flowered racemes, minute bracts and bracteoles, different calyx apex, and glabrous leaves. *Memora peregrina* (Miers) Sandw. (including *M. cuspidata* Hassl.) is usually also a shrub but has much more highly divided almost glabrous leaves and reduced bracts and bracteoles.

Generic subdivision of *Memora* is quite artificial and depends upon the size of inflorescence bracteoles. In section *Pharseophora* the bracteoles reach the middle of the calyx or beyond it; in section *Eumemora* the bracteoles are lacking

or fail to reach the middle of the calyx. Some bracteoles of *M. paucifoliolata* reach the middle of the calyx and others do not so its sectional placement is moot. However, its closest relationship is with *M. axillaris* and the rest of the Axillares group all of which belong in section *Eumemora*.

The epithet *paucifoliolata* denotes at the same time the species of *Memora* with the fewest leaflets per leaf and the convergence of that species with *Jacaranda paucifoliolata*, another simply pinnate subshrubby campos representative of a genus more noted for woody-trunked species with highly divided leaves.

ROENTGENIA BRACTEOMANA (K. Schum. ex Sprague) Urb., Ber. Deutsch. Bot. Ges. 34: 747. 1916.

To my knowledge the fruit of *Roentgenia bracteomana* (K. Schum. ex Sprague) Urb., the type species of the genus, has not been described. A fruiting collection (*Seibert 2146*, MO), from Madre de Dios, Peru, apparently is referable to this species, the fruit of which can thus be described as elongate-linear, compressed, ca. 4.4 cm long and 2.0–2.2 cm wide, the valves flat, subwoody, the midrib not noticeable, the margins slightly and gradually raised, uniformly brown, glabrous, appearing varnished under dissecting microscope, with scattered raised lenticellate spots. The very thin seeds are smooth, glabrous, uniformly brown, 1.4–1.7 cm long and 4.5–5 cm wide, with a small very indistinctly demarcated body and a linear hilum 1.7–2 cm long and 1–2 mm from the margin. The fruit of *R. bracteomana* is very like that of *Cydista aequinoctialis* (L.) Miers, raising further doubts (see Macbride, Publ. Field Mus. Bot. 13(95): 62. 1961) as to the validity of the separation of *Roentgenia* from *Cydista*. It is noteworthy that one of the two major characters supposedly separating *Roentgenia* from *Cydista*, that of trifold versus simple tendrils, breaks down in *Seibert 2146*. Of the three tendrils present on the collection, one is simple, one bifid at the extreme tip, and one trifold at the extreme tip—the latter two so minutely split that the division is hardly evident without a lens. The second major difference between *Roentgenia* and *Cydista* is in the pollen, that of the former being 12-colpate and that of the latter acolpate. Should such other characters of *Roentgenia* as the pattern of anomalous vascularization in its stem and the appearance of its fresh corollas prove as similar to *Cydista* as does its fruit, the two genera could be profitably reunited despite the difference in their pollen. Without such additional evidence from field study, however, union of the two genera seems premature.

JACARANDA IRWINII A. Gentry, sp. nov.

Frutex. *Ramuli* subpuberuli, subtetragoni. *Folia* imparipinnata, rhachidi puberula, exalata, foliolis 5–15, ellipticis, obtusis, subcoriaceis, punctatis, puberulis. *Inflorescentia* floribus in panícula dichotome ramosa dispositis, ramulis bracteis foliaceis subtentis. *Calyx* campanulatus, 5-lobatus, lobis suborbicularibus, puberulus. *Corolla* lavandula, anguste tubulato-campanulata, extus puberula, intus glabra pro parte maxima. *Stamina* quatuor, thecis duabus in quoque stamine. *Staminodium* 3.1–3.2 cm longum, ad apicem fissum, pubescens ad medium trichomatibus glandulosis. *Pistillum* ca. 3.5 cm longum, ovaria ovoideo glabro. *Fructus* ignotus.

Shrub to 3 m tall, with slender arching stems; twigs subpuberulous to glabrate, subtetragonal, drying brown. *Leaves* imparipinnately compound, the rachis 5–

20 cm long, puberulous, unwinged, grooved above, the leaflets 5–15, 1.0–1.3 cm apart, elliptic, obtuse, the base rounded, sessile or with petiolule to 4 mm long, subcoriaceous, 1–7 cm long, 0.5–3.4 cm wide, the secondary veins 3–7 on a side, inconspicuous above, prominulous below, the margins entire, revolute, glandular punctate above and below, puberulous above and below, glabrescent above, drying olive above and below, the main veins below yellowish or orangish. *Inflorescence* a narrow sparingly branched panicle, its dichotomously branched subdivisions subtended by elliptic or obovate-elliptic foliaceous bracts, these to 3.5 by 1.8 cm, puberulous and glandular punctate like the leaflets. *Calyx* campanulate, with 5 suborbicular lobes 2–3 mm in diameter, 6–7 mm long (with lobes) and 6–7 mm wide, puberulous and minutely lepidote, the lobes glandular. *Corolla* lavender-purple, narrowly tubular-campanulate, 5–6 cm long, 1.0–1.9 cm wide at mouth of tube, the tube 4.2–4.7 cm long, the lobes 6–9 mm long; puberulous with simple trichomes without, the lobes within very sparsely glandular lepidote and puberulous to almost glabrous, the tube glabrous within except for glandular trichomes at level of stamen insertion. *Stamens* didynamous, the anthers 2-thecate, the thecae divaricate, 2 mm long, the longer filaments ca. 1.8 cm long, the shorter filaments ca. 1.6 cm long, the staminode 3.1–3.2 cm long, bifid at tip, densely glandular pubescent near middle, the upper third glandular lepidote, also with a few gland-tipped trichomes near apex; insertion 12–13 mm from base of tube. *Pistil* 3.5 cm long; ovary ovoid, 1 mm long and 1 mm wide, glabrous; disk 1.5 mm long, 2 mm wide, pulvinate cupular, distinctly larger than the ovary. *Fruit* unknown.

Holotype: BRAZIL. BAHIA: Serra do Tombador; shrub to ca. 3 m tall, with slender arching stems, corolla lavender-purple; thin sandy soil on sandstone near margin of riacho, ca. 18 km E of Morro do Chapéu, elev. ca. 1100 m, 16 Feb. 1971, Irwin, Harley, & Smith 32250, (UB; isotypes MO, NY).

Jacaranda irwinii is especially remarkable in its once-compound leaves, foliaceous inflorescence bracts, and well-developed, almost suborbicular, calyx lobes. Its unique calyx serves to distinguish it at once from all other species of the genus. Although a few other species of *Jacaranda* (e.g. *J. praetermissa* Sandw. and *J. bracteata* Bur. & K. Schum.) also have foliaceous bracts, those of *J. irwinii* are of a different form. Only three other species, *J. racemosa* Cham, *J. egléri* Sandw., and *J. paucifoliolata* Mart. ex DC., have once-compound leaves. The former two are very different in habit and have narrower leaflets and linear bracts. *Jacaranda paucifoliolata* is evidently the closest relative of *J. irwinii* and likewise has foliaceous inflorescence bracts, but its leaves differ in fewer (usually 5–7), sessile, more or less obovate leaflets with the margins not at all revolute. The inflorescence bracts of *J. paucifoliolata* differ in being pointed and its calyx has acute, triangular lobes.

JACARANDA PRAETERMISSA Sandw., Kew Bull. 1954: 599. 1955.

This species has been previously known only from a few collections in Southern Piauí and a single collection from the Serra da Tabatinga in extreme northern Bahia. Several recent collections by New York Botanical Garden personnel from

the Espigão Mestre west of Barreiras in western Bahia significantly extend the known range of this species. These collections are:

BRAZIL. BAHIA: Sandy cerrado, upper slopes of Espigão Mestre ca. 32 km W of Barreiras, elev. ca. 600 m, tree ca. 3 m by 5 cm, corolla violet, fruit green, mostly defoliated, 5 Mar. 1971, *Irwin, Harley & Smith 31539* (NY); serra 34 km W of Barreiras, elev. ca. 710 m, cerrado or cerradão, the soil clay or somewhat sandy, tree 3.5 m tall, 2 Mar. 1972, *Anderson, Stieber, Kirkbride 36433* (MO, NY); sandy campo with scattered trees and shrubs, ca. 100 km WSW of Barreiras, elev. ca. 760 m, small tree 3 m tall, fruit green, 6 Mar. 1972, *Anderson, Stieber, & Kirkbride 36677* (MO, NY).

In addition to the difference in collecting locality, these collections differ from typical *J. praetermissa* in having notably larger (to 12 mm long and 4 mm wide) almost foliaceous calyx lobes and larger (4–5 cm long and 3.5–4 cm wide) fruits with the apex rounded or minutely and bluntly apiculate rather than emarginate. Despite these differences it seems advisable to retain the Espigão Mestre collections in *J. praetermissa* pending further study.

Another collection from Bahia, *Luetzelburg 151* (M), is also referable here. However, its fruit is strongly emarginate, indeed almost heart-shaped, as described for *J. praetermissa*. It is also reminiscent in shape of the much larger fruit of *J. chapadensis* Barb. Rodr., known only from a leafless fruiting collection from Mato Grosso. If capsule size and the shape of its apex prove as variable within other species of this alliance as I am inferring for *J. praetermissa*, then it may be possible to reduce *J. chapadensis* to *J. brasiliana* (Lam.) Pers. and a re-evaluation of the differences (summarized by Sandwith in *Kew Bull.* 1953: 52–53. 1954) between *J. acutifolia* H.&B. and the widely cultivated *J. mimosifolia* D. Don might also be in order.

JACARANDA ROBERTII S. Moore, *Jour. Bot.* 45: 405. 1907.

This extremely interesting species is known only from the type collection (*A. Robert 675* from Sant' Anna da Chapada, Mato Grosso, Brazil) and has not been commented upon since its description. Moore's description was somewhat misleading. He described the leaflet as decurrent at the base and noted neither the irregularly serrulate margin and cordulate base of the leaflet nor the conspicuously winged rachis of leaf and pinnae which are among the most striking features of the plant.

Moore compared his species with *Jacaranda decurrens* Cham., emphasizing the decurrent leaflets of both plants. However, the leaflets of *J. robertii*, though sessile, are discrete and not at all continuous with the winged rachis of the pinna while in *J. decurrens* the leaflets and rachis wing are continuous. Although having only a single fertile anther theca per stamen and thus clearly belonging with *J. decurrens* in section *Monolobos*, *J. robertii* is vegetatively very different from all members of that alliance. On the other hand it is superficially very like *J. rufa* Manso of section *Dilobos*. Indeed, the present author would have assigned without further consideration the undesignated and misidentified (as *J. cuspidifolia*) MO isotype to that species had the single calyx of the mounted material not appeared much too short for *J. rufa*. Although further examination revealed that this calyx was merely broken and, except for its lesser pubescence could after all

have belonged to *J. rufa*, dissection of a flower revealed that the stamens were monothebate! A careful comparison of the two species then revealed that the leaflets of *J. rufa* are distinguishable as being elliptic or rhombic-elliptic, widest at the middle and tapered to an acute (rarely subcordulate) base while those of *J. robertii* are ovate, widest below the middle, with a distinctly cordulate base. The leaflets of *J. rufa* are also generally more conspicuously serrate and more pubescent, and its corolla is quite different (tube glabrous within, not narrower above base, mostly glandular lepidote without). Nevertheless the resemblance of the two species remains striking, especially in light of the vegetative divergence of *J. robertii* from other species of section *Monolobos*. For the present it must be regarded as an interesting example of convergence with *J. rufa*, although it is remotely possible that hybridization between *J. rufa* (also collected by Roberts at Sant' Anna da Chapada) and a species (but which?) of section *Monolobos* could have given rise to this plant.

A second collection which is possibly related to this species is *Irwin et al.* 25307 which is described as a simple and few-branched shrub ca. 1 m tall. This collection, from the Serra do Facao, State of Goiás, is in fruit only so that its placement is difficult to assess. Nevertheless, its winged rachises and numerous rather large leaflets are reminiscent of *J. robertii*. Its leaflets differ, however, in being coriaceous or subcoriaceous and entire with slightly revolute margins and rounded rather than cordulate bases.

It is to be hoped that other specimens of this taxon will come to light. I would anticipate that careful examinations of the sheets of *J. rufa* in major herbaria might reveal such additional specimens.

TABEBUIA EXIMIA (Miq.) Sandw., *Lloydia* 2: 213. 1939.

Tecoma eximia Miq., *Linnaea* 22: 803. 1849.

Tabebuia eximia has apparently not been interpreted since its inclusion (as *Tecoma eximia*) in the *Flora Brasiliensis* (Bureau & Schumann, 1896–97). Sandwith made the new combination in *Tabebuia* without comment in 1939. Miquel, in describing the species, related it to *T. serratifolia* (Vahl) Nichols. and *T. heptaphylla* (Vell.) Toledo (both of which he considered to be species of *Tecoma*). Bureau and Schumann, on the other hand, remarked a similarity between *T. eximia* and *T. atrovirens* (now regarded as a synonym of *Tabebuia elliptica* (DC.) Sandw.). The type collection of *T. eximia*, *Blanchet* 3963 from Bahia, Brazil, is represented by duplicates at many of the major European herbaria, although I have seen no other collections of the species. (Bureau & Schumann list *Luschnath* 26 as a second collection, but that gathering was probably destroyed at Berlin.) Examination of the holotype at Utrecht and the isotypes at Brussels, Copenhagen, Kew, and Paris reveals that in each case a detached branch with leaves is mounted alongside a leafless flowering branch. Considered as separate elements, the material with leaves is readily identifiable with *Tabebuia impetiginosa* (Mart. ex DC.) Standl. (*sensu lato* to include *T. heptaphylla* *sensu* Martius & DC., see Gentry, *Ann. Missouri Bot. Gard.* 62, in prep.), while that with flowers appears to match *T. umbellata* (Sond.) Sandw., a situation strongly suggestive of a mixed

collection. Examination of yet another isotype, at Geneva, clinches the argument, since this sheet contains, in addition to the detached branchlet with mature leaves, a few young leaves attached to the flowering branchlet. The attached leaves are quite strongly stellate-pubescent and match young leaves of such collections of *T. umbellata* as *Hatschbach 6407* (κ) but are completely different from the nearly glabrate leaves of *T. impetiginosa* making up the second element of the collection.

I propose to select the flowering branchlets and young leaves of *Blanchet 3963* as the type element for *Tecoma eximia* under Article 9 of the *Code of Nomenclature*. This makes *T. eximia* synonymous with *T. umbellata* (Sond.) Sandw. Through an amazing coincidence, however, both *Tecoma eximia* and *Tecoma umbellata* were published in the same volume of *Linnaea*, apparently on the same day. It is therefore necessary to choose one of these names for the plant in question. The choice, under Recommendation 7B, of the well known epithet *T. umbellata* rather than the relatively unknown and confusing *T. eximia* is obvious. The alternate procedure of outright rejection of *T. eximia* under Article 70 gives the same result more directly. However that alternative leaves open the possibility of later selection of a type element from the *Blanchet* collection with resultant additional confusion if *T. umbellata* were then to be rejected in favor of *T. eximia* as would still be theoretically possible.

TABEBUIA ELLIPTICA (DC.) Sandw., *Candollea* 7: 253. 1937.

Bignonia elliptica Cham., *Linnaea* 7: 686. 1832, non Thunb.

Tecoma elliptica DC., *Prodr.* 9: 220. 1845.

Tecoma atrovirens DC., *Prodr.* 9: 220. 1845.

Sparattosperma psammophilum Mart. ex DC., *Prodr.* 9: 203. 1845.

S. ellipticum (DC.) Bur. & K. Schum. in Mart., *Fl. Bras.* 8(2): 362. 1897

Tabebuia atrovirens (DC.) Standl., *Field Mus. Nat. Hist., Bot. Ser.* 11: 176. 1936.

This species was a source of confusion to Sandwith who first (*Kew Bull.* 1954: 598. 1955) suggested that *T. insignis* (Miq.) Sandw. might have to be reduced to *T. elliptica* and later (notes in κ) noted the same possibility for *T. roseo-alba* (Ridley) Sandw. *Tabebuia elliptica* is indeed intermediate between *T. insignis* and *T. roseo-alba*, resembling the former in its 5-foliolate leaves and inflorescence and the latter in its calyx which is bearded on the upper margin. My first inclination was that *T. elliptica*—known only from the type (*Sellow s.n.* (κ)) collected in Espírito Santo, Brazil, the type of *T. atrovirens* (*Blanchet s.n.* (G-DC)) collected in Bahia, Brazil, and the type of *Sparattosperma psammophilum* (*Wied.-Neuwied s.n.* (BR)) collected in Espírito Santo—might be a hybrid between *T. insignis* and *T. roseo-alba*. However two recent collections, sharing exactly the same combination of characters, indicate that it must be recognized as a good species. The additional collections I have examined are *Belém & Magalhães 799* (NY) from the mata litorânea, Rodovia Camacan-Canavieira, Bahia, described as a tree 10 m tall and 40 cm in diameter, the flowers white with yellow centers, and *Belém & Mendes 246* (NY) from restinga, Lagoa Abaeté, Salvador, Bahia, described as having white flowers. Gomes (*Rev. Brasil. Biol.* 11: 49–52. 1951) reported examining the pollen of yet another collection of this species which he designated only as “Herb. Mus. Nac. Rio de Jan. No. 21843.” *Tabebuia elliptica*

is evidently restricted to the narrow band of lowland forest along the eastern coast of Brazil.

TABEBUIA BUREAUVII Sandw., Kew Bull. 13: 442. 1959.

Tecoma dentata Bur. & Schum. in Mart., Fl. Bras. 8(2): 323. 1897.

Sandwith failed to note its resemblance to *T. umbellata* (Sond.) Sandw. when he transferred *Tecoma dentata* to *Tabebuia* as *Tabebuia bureauvii*. Since *Tabebuia dentata* Miers (Proc. Roy. Hort. Soc. 3: 199. 1863.) pre-empted the epithet *dentata* in *Tabebuia*, Sandwith's nomen novum was necessary in that genus. However, the chief difference between *T. bureauvii* and the closely related *T. umbellata*, which also occurs near Rio de Janeiro, appears to be in the conspicuously serrate leaflets of the former. *Tabebuia bureauvii* has been regarded as endemic to Corcovado Mountain and is known from only three collections, two of them consecutive numbers (12080 (κ) and 12081 (c, p)) of Glaziou. *Tabebuia umbellata* is widespread in the eastern lowlands of Brazil. However, I have seen a specimen of *T. umbellata* (Dusén 18146 (κ)) from Paraná, Brazil, which has basally entire leaflets which are dentate at the tips. I strongly suspect, therefore, that the serrate leaflets of *T. bureauvii* should not be regarded as a valid specific character. Although I am unprepared to evaluate the significance of the exceptionally long ovary accorded to this plant by Bureau and Schumann, it seems likely that *T. bureauvii* will prove to be no more than a variety of *T. umbellata*.